

Claims

1. A process for the surface treatment of a threaded joint for steel pipes comprising a pin and a box each having a contact surface including a threaded portion and an unthreaded metal contact portion,
 - 5 characterized in that the process comprises the steps:
 - applying a coating fluid containing a resin and a lubricating powder in a solvent to the contact surface of at least one of the pin and the box, and
 - drying the applied coating by multistage heating which includes at least first stage heating in the temperature range of from 70 °C to 150 °C and second stage
 - 10 heating in the range of from higher than 150 °C to 380 °C to form a solid lubricant coating on the contact surface.
2. A process as set forth in claim 1, wherein the process further includes, prior to the coating application step, a step of heating the contact surface to be coated to a temperature of from 50 °C to 200 °C.
- 15 3. A process as set forth in claim 1 or 2, wherein the solid lubricant coating which is formed has a hardness of 70 - 140 on the Rockwell M scale.
4. A process as set forth in claim 1 or 2, wherein the solid lubricant coating formed has an adhesive strength of at least 500 N/m as determined by the SAICAS (Surface And Interfacial Cutting Analysis System) method.
- 20 5. A process as set forth in claim 1 or 2, wherein the lubricating powder is a powder of one or more substances selected from molybdenum disulfide, tungsten disulfide, graphite, boron nitride, and polytetrafluoroethylene.
6. A process as set forth in claim 1 or 2, wherein the contact surface to which the coating fluid is applied has a surface roughness of 5 - 40 μm R_{max}.

7. A process as set forth in claim 1 or 2, wherein the contact surface to which the coating fluid is applied has a porous coating layer formed by pretreatment.

8. A threaded joint for steel pipes comprising a pin and a box each having a contact surface including a threaded portion and an unthreaded metal contact portion,

characterized in that the contact surface of at least one of the pin and the box has a solid lubricant coating formed thereon which comprises a lubricating powder selected from molybdenum disulfide and/or tungsten disulfide and a resin, the coating having a hardness of 70 - 140 on the Rockwell M scale.

10 9. A threaded joint for steel pipes comprising a pin and a box each having a contact surface including a threaded portion and an unthreaded metal contact portion,

characterized in that the contact surface of at least one of the pin and the box has a solid lubricant coating formed thereon which comprises a lubricating powder selected from molybdenum disulfide and/or tungsten disulfide and a resin, the coating having an adhesive strength of at least 500 N/m as determined by the SAICAS method.

10. A threaded joint for steel pipes comprising a pin and a box each having a contact surface including a threaded portion and an unthreaded metal contact portion,

characterized in that the contact surface of at least one of the pin and the box has a solid lubricant coating formed thereon which comprises a lubricating powder, ultraviolet screening fine particles, and a resin.

11. A threaded joint as set forth in claim 10, wherein the lubricating powder is a powder of one or more substances selected from molybdenum disulfide, tungsten disulfide, graphite, boron nitride, and polytetrafluoroethylene.

12. A threaded joint as set forth in claim 10, wherein the ultraviolet screening fine particles are fine particles of one or more substances selected from titanium oxide, zinc oxide, and iron oxide.

13. A threaded joint as set forth in claim 10, wherein the ultraviolet screening fine particles have a mean particle diameter of 0.01 - 0.1 μm .

14. A threaded joint as set forth in claim 10, wherein the ultraviolet screening fine particles are present in the solid lubricant coating with a mass ratio of 0.1 - 50 parts to 100 parts of the resin.

15. A threaded joint as set forth in any one of claims 8 to 10, wherein the contact surface having the solid lubricant coating has a surface roughness of 5 - 40 $\mu\text{m R}_{\text{max}}$.

16. A threaded joint as set forth in any one of claims 8 to 10, wherein a porous coating layer is disposed between the solid lubricant coating and the contact surface.